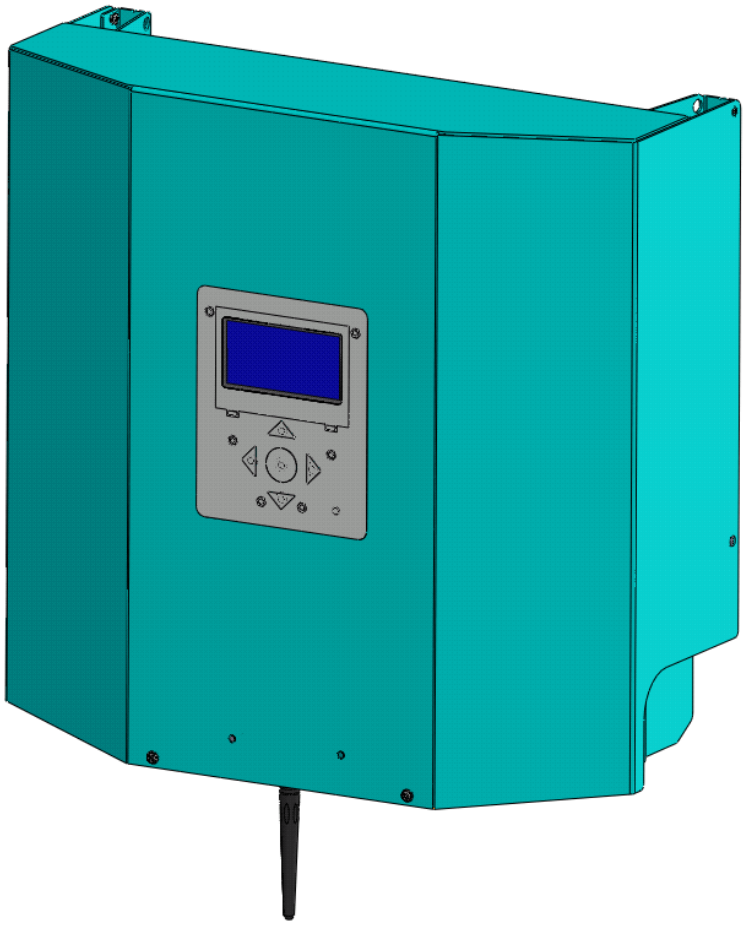
Pika ENERGY

B801
Battery Charge Controller
Installation and service Manual

Installation & Service Manual for the B801 REbus™ Charge Controller



Revision Table

Revision	Date	Changes
1.0	2/2/2015	Initial Release
1.1	3/20/2015	Diagram improvements, fuse specs

General Remarks

Congratulations! You have purchased the Pika Energy B801 REbus™ bidirectional charge controller, a dependable, efficient component of your clean energy system. The B801 is the result of the Pika team's careful development and testing, building on decades of experience in the fields of power electronics and renewable energy systems.

The B801 is a charge controller designed for high-efficiency bidirectional conversion between a REbus™ Microgrid and a 24V to 48V battery bank at up to 80A. This charge controller is equipped with a small fan to keep things cool under extreme conditions. An illuminated display and intuitive system of menus enable you to configure a variety of setpoints as well as view the energy output of every component of your REbus™ renewable energy system. The charge controller also serves as an information gateway, enabling remote monitoring and control of your REbus™ microgrid system.

Unlike conventional charge controllers, which only connect to one type of energy source, Pika's B801 is designed to operate as the hub for an expandable network of renewable energy devices, based on the REbus™ renewable energy standard.

What is REbus™?

The underlying technology behind Pika Energy's B801 Charge Controller is an innovative energy management technology or 'smart microgrid' called REbus™. REbus™ is a DC energy network that can operate alongside an existing AC infrastructure (i.e. the "grid") or an off-grid DC battery bank infrastructure. This enables customers to build cost-effective, scalable renewable energy systems. The REbus™ network is designed to serve as an open interconnection standard for networking next-generation energy technology – like Wi-Fi or USB for green energy!

IMPORTANT! Only REbus™ compatible components may be used in connection with this charge controller. Do not connect the output of a PV array or any other non-REbus™ electrical source to the charge controller terminals. Serious property damage and/or personal injury may result.

Contents

1 Regarding this Document 4

1.1 Symbols used in this document 4

1.2 Data Label 4

2 Important safety information and instructions 5

2.1 Appropriate Usage 5

2.2 Battery Output Details 5

3 Notes concerning installation and operation 6

3.1 Intended (normal) use 6

3.2 Pika Energy Factory Limited Warranty 6

3.3 Service 6

4 The REbus™ Microgrid 7

4.1 Simple and efficient power distribution 7

4.2 Integrated Power Line Carrier (PLC) communications 7

4.3 REbus™ Control Protocol (RCP) 7

5 Designing a REbus™ system 8

6 Installation 9

6.1 Checking for shipping damage 9

6.2 B801 mounting 11

6.3 Electrical connection notes 15

6.4 Batteries 16

6.5 Battery Connection 17

6.6 Accessory Connections 17

6.7 REbus™ DC connection 18

6.8 Wiring the charge controller 19

6.9 Commissioning the charge controller 21

6.10 Operation 21

7 Troubleshooting 21

1 Regarding this Document

This manual contains important instructions for the B801 Charge Controller that must be followed during installation and maintenance of the charge controller. The B801 is designed and tested according to international safety requirements, but as with all electrical and electronic equipment, certain precautions must be observed when installing and/or operating the B801. To reduce the risk of personal injury and to ensure the safe installation and operation of the B801, you must carefully read and follow all instructions, cautions and warnings in this user manual.

Store this manual so that it is always easily accessible.

1.1 Symbols used in this document

WARNING: This indicates a fact or feature very important for the safety of the user to prevent injury or death and/or which can cause serious hardware damage if not applied appropriately.

CAUTION: Presents information to prevent damage to this product

EARTH GROUND SYMBOL

1.2 Data Label

A permanently affixed label indicating the device specifications, serial number, and manufacturing date is located on the bottom surface of the charge controller enclosure. Tampering with label can void warranty.

2 Important safety information and instructions

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important instructions for model B801 that shall be followed during installation and maintenance of the Pika B801 Charge Controller.

WARNING: Before installing the Pika Energy B801 Charge Controller, read all instructions and caution markings in this manual and on the B801 device itself as well as on other REbus™ devices.

WARNING: Electrical installation in the United States shall be done in accordance with all local electrical codes and/or the National Electrical Code (NEC), ANSI/NFPA 70.

WARNING: Electrical installation in Canada shall be done in accordance with all local electrical codes and/or the Canadian Electrical Code.

2.1 Appropriate Usage

The B801 is a charge controller designed for high-efficiency bidirectional conversion between a REbus™ microgrid and a 24V to 48V battery bank. Refer to this charge controller installation manual for detailed information about the product and its intended use. The charge controller may only be operated with REbus™ devices. Do not use the charge controller for purposes other than those described here. Alternative uses, modifications to the charge controller or the installation of components not expressly recommended or sold by the manufacturer void the warranty claims and operating permission. Contact the Pika Energy technical support if you need clarification regarding proper use of the charge controller.

2.2 Battery Output Details

The B801 is to be connected to 24V to 48V battery banks only. Supported battery chemistries include: flooded lead acid, sealed lead acid (“maintenance free”), AGM, Aqueous Hybrid Ion (AHI) or lithium based chemistries such as Li-ion, lithium polymer or lithium-iron phosphate (with individual balancer circuits). Other chemistries can be supported through customizable setpoints. Contact Pika Energy before using this product with battery chemistries other than those listed above. The input and output circuits are isolated from each other and the enclosure. System grounding to the ground lugs provided in the wiring box is the responsibility of the installer.

3 Notes concerning installation and operation

3.1 Intended (normal) use

Your charge controller is strictly constructed according to approved safety requirements. Improper use may lead to lethal hazards for operators and/or damage to devices and property. Improper use or modification of the B801 may result in serious property damage, personal injury or death.

REBUS™ INPUT ONLY! The B801 is designed to accept regulated direct current (DC) from REbus™-compatible devices (e.g. REbus™-compatible wind turbine, REbus™-compatible PV Link unit). DO NOT CONNECT PHOTOVOLTAIC MODULES DIRECTLY TO THE REBUS™ INPUTS OF THE B801 CHARGE CONTROLLER. DOING SO WILL VOID THE WARRANTY AND MAY DAMAGE THE CHARGE CONTROLLER.

Any use other than the specified intended use shall not be deemed intended or normal use, and may result in property damage, personal injury or death. Pika is not liable for damage or injuries caused by unintended use.

Damage caused by unintended use is at the sole risk of the operator.

“Intended use” shall also include adherence to the operating and installation instructions.

Your trained and authorized installer must obtain all necessary permits and agreements from your local government and your utility company for a legal and code-compliant installation of your REbus™ Smart Microgrid system. See the User Manual for more detail.

3.2 Pika Energy Factory Limited Warranty

The Pika limited warranty covers defects in workmanship and materials of the Pika B801 Charge Controller for a period of five (5) years from the date of original purchase of such charge controller at point of sale to the originally-installed end user location. Contact Pika Energy Support for warranty claim information.

3.3 Service

WARNING: Do not attempt to repair the B801 Charge Controller. The charge controller contains no user-serviceable parts.

It is a good idea to save all packaging for your B801 and associated components in case warranty or hardware upgrade is required! Failure to ship the unit in the provided shipping material may result in damage!

If the Pika B801 Charge Controller malfunctions or fails in any way, first contact Pika customer service at 1 (207) 887-9105 for troubleshooting help. See the Warranty section for details on terms and conditions for repair or replacement under warranty. You must obtain an RMA (Returned Merchandise Authorization) number prior to returning the unit. Obtain the assistance of a skilled and qualified installer to safely disconnect the charge controller for shipment.

Technical Support Information:

- Support department hours: 9AM to 5PM EST, Monday – Friday (excluding holidays)
- Phone: 1-(207)887-9105 United States Language: English
- Email: support@pika-energy.com

4 The REbus™ Microgrid

The REbus™ Microgrid is the underlying technology that allows for the efficient and robust interconnection of different types of renewable energy products and loads. This section is informational only and not required knowledge for operation of your Pika B801 Charge Controller.

4.1 Simple and efficient power distribution

The REbus™ Microgrid architecture was designed with renewable energy in mind. A clean-sheet approach to power distribution resulted in the most practical and efficient interconnection technology available. The microgrid operates at variable voltage in a defined range, between +/- 180-200 V relative to ground. This voltage range simultaneously allows for efficient power transmission, reduced shock hazard, and simplified electronics for a bidirectional power converter such as the B801. The variable voltage communicates energy availability to the attached REbus™ devices, which allows for prioritized energy storage and load shedding. The microgrid is designed to support many different types of renewable energy sources and power converters, as well as accommodating future DC loads that are presently in development.

4.2 Integrated Power Line Carrier (PLC) communications

The REbus™ microgrid standard also specifies an optional power line carrier communication technology that enables devices on the same microgrid to communicate with one another. The B801 uses this capability to gather information about your system such as the status and energy production of your Pika T701 Wind Turbine or your solar array, which connects to the REbus™ microgrid through the Pika S2001 PV Link.

4.3 REbus™ Control Protocol (RCP)

REbus™ Control Protocol is a communications protocol developed specifically for the transfer of data between REbus™-compatible power converters and data management products. RCP is an open-standard protocol which enables independent developers to interface with REbus™ products and create software and applications to enhance user experience. Please visit the Pika Energy website to learn more about RCP and the software applications that are currently available.

5 Designing a REbus™ system

Your trained and qualified installer will work with the Pika Energy technical support team to design the right system for your site. Please consult with Pika Energy sales department at (207) 887-9105 or on the web at www.pika-energy.com to find an installer near you.

The Pika Energy products are designed from the ground up for unmatched flexibility. First and foremost, the B801 Charge Controller accepts input from any combination of REbus™-compatible sources. In fact, the B801 Charge Controller supports up to 32 devices on the REbus™ microgrid network, and the automatic power management capability of REbus™ allows the total power rating of sources on the network to exceed the charge controller power rating by up to 2X. As of publication, Pika Energy offers the following REbus™ products in addition to the B801 Charge Controller:

- T701 Wind Turbine
- S2001 PV Link
- X3001 Inverter
- REport Data Monitor

Check the Pika Energy website at http://www.pika-energy.com for the latest selection of REbus™-compatible product offerings.

6 Installation

6.1 Checking for shipping damage

The B801 Charge Controller is thoroughly checked and tested before it is shipped. The charge controllers can be damaged in shipping, despite the carefully designed cardboard packaging.

Please inspect the charge controller thoroughly after it is delivered. If any damage is seen please immediately notify the shipping company. If there is any question about potential shipping damage, contact Pika Energy. Please capture a photograph of the damage if possible.

Do not accept unit if visibly damaged or note visible damage when signing shipping company receipt. Report damage immediately to the shipping company. Do not remove the unit from its packaging. If it is determined that the unit must be returned, a RMA# must be obtained from Pika Energy.

B801 Packing List

The standard B801 shipment comes with mounting screws, a Wi-Fi antenna, mounting template, mounting screws, a device ID card and a hard copy of the installation and operations manual. Please verify that all items have been received before beginning the installation. A B801 may ship with an optional MNSPD-300 Surge Protection Device.

B801 Package Checklist

Got it!	B801 Package
	B801 Unit
	Mounting screws (4x)
	Wi-fi Antenna
	Device ID card
	Installation and Operations Manuals
	B801 Mounting Template

Tools Checklist

B801 Installation Tools Checklist

Got it!	**Tool**	**Comment**
	Voltmeter	
	Level	
	Red and Blue Electrical Tape	For marking unlabeled wiring
	Masking Tape	For hanging mounting template
	Drill and drill bits	
	#2 Phillips Screwdriver	
	Flat Head Screwdriver	
	4MM hex wrench	Battery Terminal Lugs
	Fish tape	
	Pliers	For conduit nuts
	Insulated wrenches	For working with live battery wiring
	Hammer	Knockout Removal
	Utility knife	
	Wire strippers	
	Torque screwdriver (4-15 in-lb)	For verifying torque specifications
	Flashlight	

6.2 Charge controller mounting

The B801 Charge Controller is a powder-coated steel enclosure (see Figure 6.1 for dimensions) rated for indoor use. The charge controller is shipped complete and does not require a separate mounting bracket. A wall mounting bracket to permit mounting on a narrow structural member (e.g. stud) may be available, contact Pika Energy for details.

- The B801 should be mounted out of direct rain, either under a weather proof overhang or indoors.
- Ideally, the charge controller should be restricted from direct sun exposure. This will best prevent power derating due to charge controller heatsink temperatures above 50 C. The maximum ambient temperature is 50 C. See Operations manual for additional details.
- If feasible, the charge controller should be installed away from areas where animals congregate, as the high frequency (40 kHz) switching of the electronics may disturb them.
- During operation, the charge controller heatsink may be hot and should be situated in locations where it will not be subject to incidental contact.
- To minimize running the fan, make best use of passive cooling system in the Pika B801 by mounting on a flat, smooth, vertical wall.
- For best Wi-Fi performance, the B801 should be installed within 150 ft. of a wireless router. For increased range see antenna details in section 6.3.
- Minimum clearances must be maintained, as shown in Figure 6.2 below.
- The holes for mounting the B801 are not standard stud spacing and may require additional pieces of lumber if mounting to an interior wall.

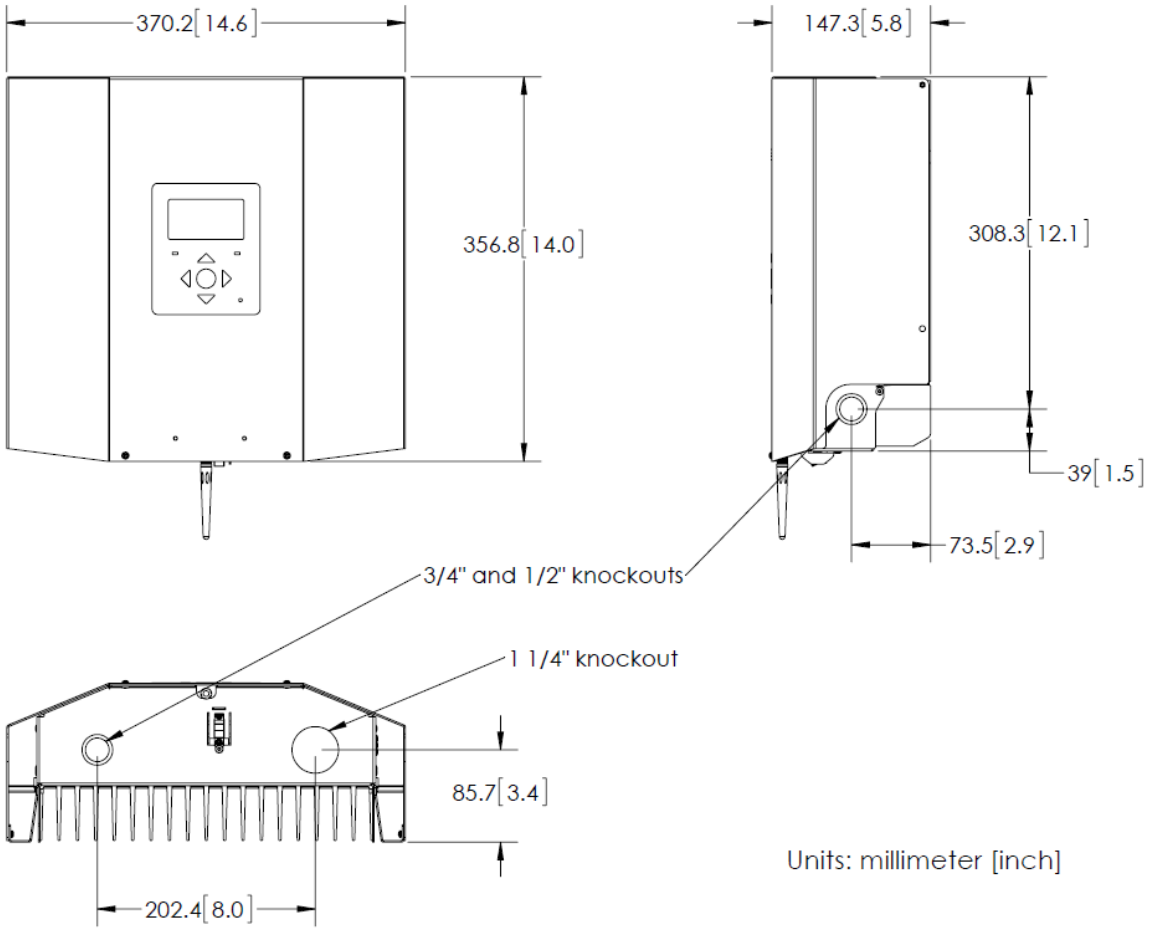


Figure 6.1 Pika B801 Dimensions

Note: Mounting holes for the B801 are not located on a standard stud spacing. Please refer to mounting template for accurate mounting hole placement. The B801 also has a lid which requires clearance at least 152.3mm (6 inches) of clearance above the unit to open fully.

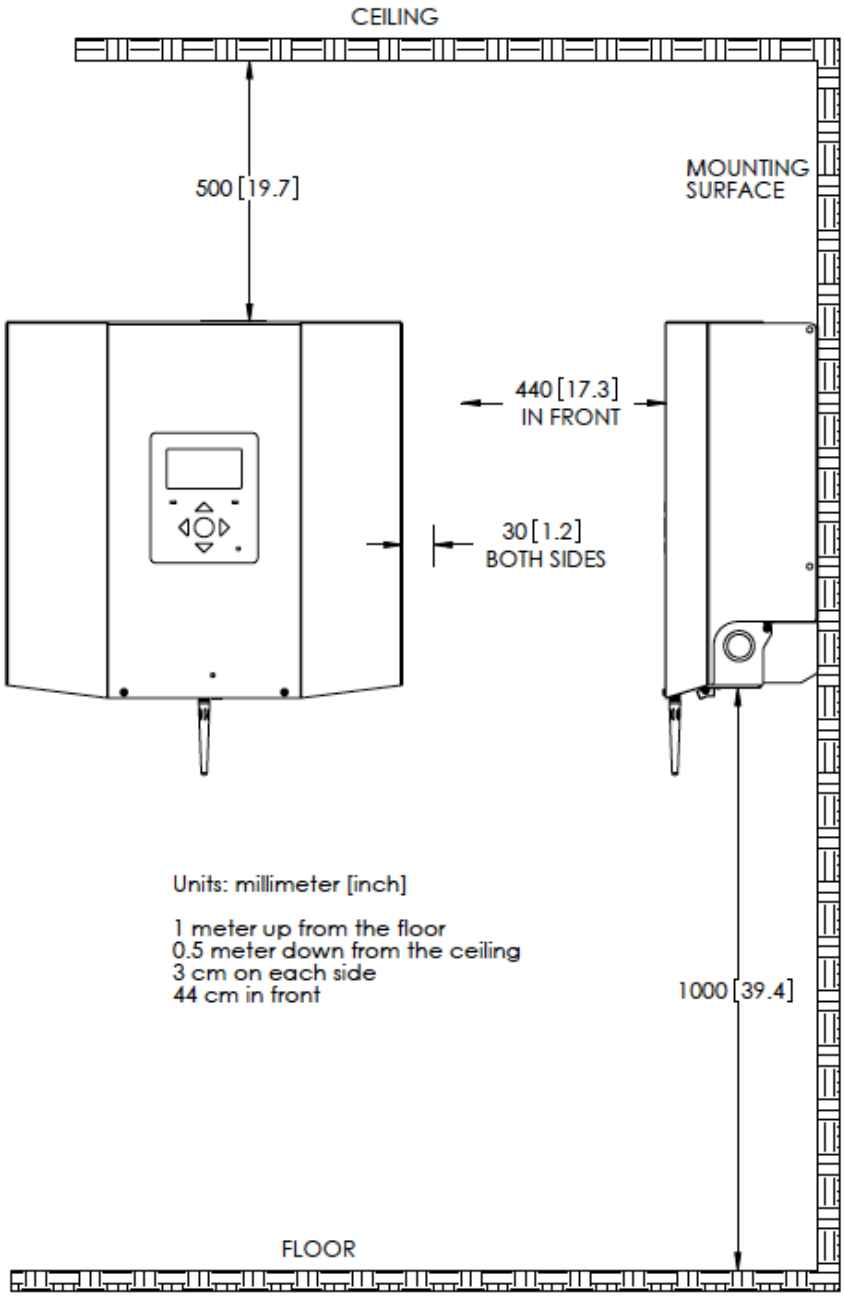


Figure 6.2 Charge Controller Minimum Clearance

Mounting surface must be suitable for installing #10 (~M5) pan head screws (suitable for tightening with screwdriver). These screws can be installed in wood, metal, or masonry. If screw anchors are used (e.g. concrete expansion anchor), they must be rated to hold the 11 kg (25 lb) charge controller with appropriate safety factor. Drywall is not a recommended mounting surface for the charge controller. Mounting surface should be vertical.

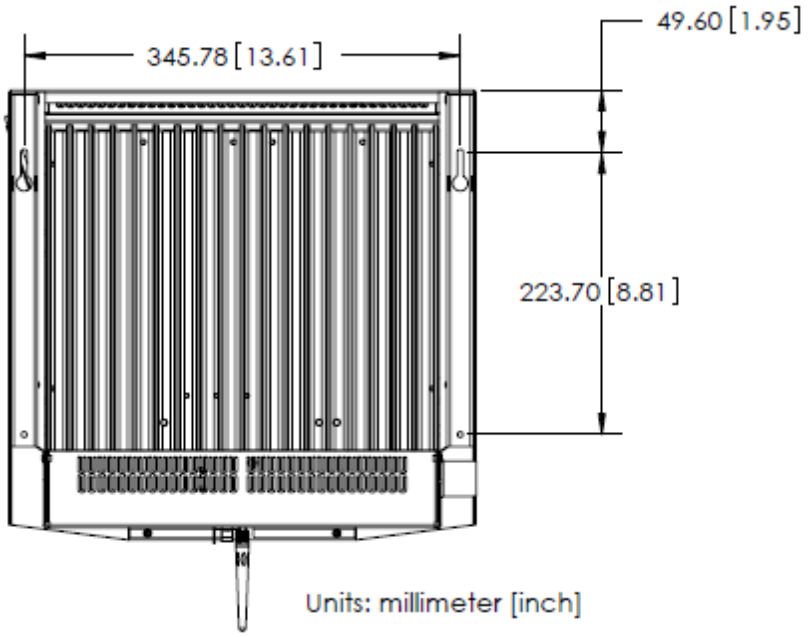


Figure 6.3 Mounting Hole Diagram

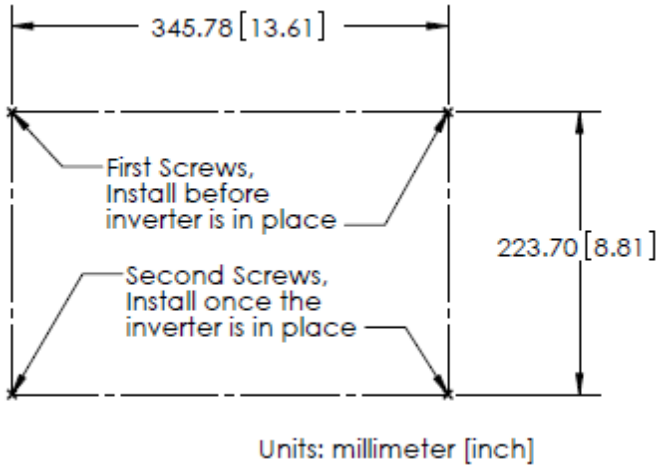


Figure 6.4 Mounting Screw Diagram

Use the included mounting template to accurately mark and drill holes for installing the B801. Install two of the included screws into mounting surface 345.8 mm (13.6 in.) apart as shown in Figure 6.4. Leave a minimum of a 3 mm gap between the head of the screw and the mounting surface to accept the enclosure foot. Install charge controller over these two screws. Remove M3 screws securing charge controller cover and open cover. Install second two #10 (or equivalent) screws in lower mounting holes. Tighten all screws.

6.3 Electrical connection notes

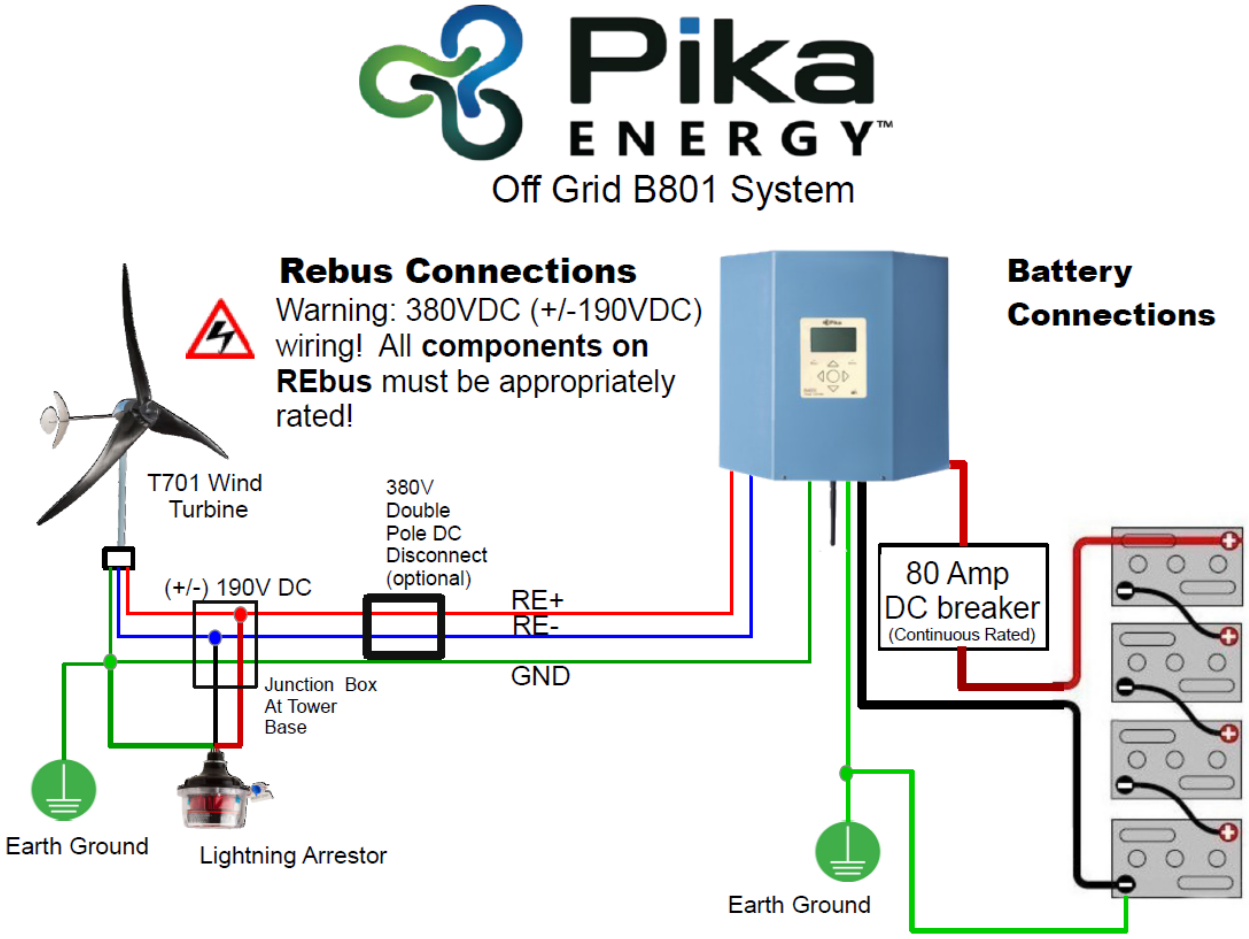


Figure 6.5 Example B801 system with T701 Wind Turbine

WARNING: All electrical installations in the United States shall be done in accordance with all local electrical codes and/or the National Electrical Code (NEC), ANSI/NFPA 70.

WARNING: Electrical installation in Canada shall be done in accordance with all local electrical codes and/or the Canadian Electrical Code.

WARNING: To reduce the risk of fire, always install a dedicated 80A (continuous rated) DC circuit breaker between the charge controller and battery.

The B801 Charge Controller is equipped with concentric electrical knockouts suitable for ½ or ¾" conduit fittings as well as a larger knockout for 1 ¼" conduit intended for battery cabling. REbus™ DC terminals allow for 14 to 10 AWG copper conductors. Earth ground terminals allow for 14 to 8 AWG copper or aluminum conductors. Battery connection terminals allow for 8-2AWG conductors, a 4mm hex wrench is required to tighten the terminals

Pika Energy recommends the use of the MNSPD-300-DC (or equivalent) for protection on all REbus devices. The surge protection device should always be installed as close as possible to the hardware it is intended to protect.

The included Wi-Fi antenna is recommended for use within 125ft of a wireless router. For increased range a directional antenna may be used. The B801 will not connect to a wireless network without an antenna. The Wi-Fi antenna connects to a female RP-SMA jack on the bottom of the enclosure lid, there are a variety of range extending antennas available.

6.4 Batteries

When designing a battery based system, it is critical to select the proper voltage and capacity batteries for the expected system energy usage. For maximum reliability avoid installing previously used or old batteries. Pika Energy recommends using new batteries when installing a B801 charge controller. Ensure batteries are installed in an area with adequate ventilation and away from potential sources of ignition. A properly constructed battery box is recommended to protect and isolate batteries.

The B801 is to be connected to 24V to 48V battery banks only. Supported battery chemistries include: flooded lead acid, sealed lead acid ("maintenance free"), AGM, Aqueous Hybrid Ion (AHI) or lithium based chemistries such as Li-ion, lithium polymer or lithium-iron phosphate (with individual balancer circuits). Other chemistries can be supported through customizable setpoints. Contact Pika Energy before using this product with battery chemistries other than those listed above.

WARNING: Never short circuit batteries and use extreme caution when making battery terminations. Remember that batteries are **ALWAYS** live; there is no OFF switch for battery terminals.

Use proper terminals for battery jumper wires. Follow all manufacturer guidelines for crimping cable terminals. Use manufacturer recommended techniques and tools for making terminal connections. Test each terminal by pulling to check that terminals are adequately connected to each wire before installation. With proper technique these battery connections will last for years to come but with poor technique they can become a serious hazard. Use insulated tools when making connections to battery terminals.

Use caution when lifting or moving batteries, use appropriate personal protective equipment. Do not invert or puncture battery cells, corrosive acid could spill from the battery.

6.5 Battery Connection

Termination of the battery connections to the B801 must only be completed with the wiring disconnected from batteries! Install an 80A (continuous) DC-rated disconnect and ensure it is turned OFF before making connection to the B801! Failure to do this may result in personal injury and/or damage to the battery bank.

WARNING: Always keep the battery disconnect breaker off when connecting the batteries. The disconnect should always break the ungrounded battery conductor.

WARNING: Perform a high potential test on all existing wiring before any connections are made! N**ever trust existing wiring** until a high potential test has been performed. Pika recommends 1kV testing on all REbus™ wiring. Failure to high potential test existing wiring **before** installation will void warranty! For questions concerning high potential testing contact Pika Technical Support.

A 4mm hex wrench is required to tighten battery lugs. Battery lugs on the B801 can accept up to 1/0AWG wire, however fine stranded marine grade wire is not recommended without tinning wire ends. Tinning wire ends expands wire and it may not fit in the lugs without forming it with pliers. A minimum of 4AWG wire is recommended for wiring from the charge controller to the batteries. Route cables in the shortest path possible between the charge controller and battery bank. Inspect all battery wire insulation for cracks or fissures, never use wire with brittle or compromised insulation.

Install a DC breaker rated for 80A (continuous rated) and the appropriate battery voltage in series with the ungrounded battery conductor. Mount the DC breaker in an easy to access location that is clearly labeled. Use of a grounded metal enclosure to house the 80A (continuous rated) DC breaker is recommended.

Multiple B801 units can be used at the same location/facility assuming all codes are followed including NEC, and local building codes. If multiple units are used, each charge controller should have its own dedicated circuit breaker. Contact Pika about configuring the power line carrier communications in applications with adjacent B801 charge controllers.

6.6 Accessory Connections

The B801 has several optional accessories, including an external battery temperature sensor, current shunt and relay outputs. All accessory wiring connections can be made on the 7 terminal block located on the right side of the wiring compartment. The terminals accept wire as large as 14AWG.

The battery temperature sensor utilizes a non-polarized thermistor, connect each end of the temp sensor to the terminals marked “T” as shown in Figure 6.6 B801 Wiring Compartment. Secure the temperature sensor such that it is making good contact with the batteries to ensure an accurate measurement.

Connect the optional current shunt in series on the battery positive or battery negative between the battery bank and load (inverter,etc). Run the two current sense wires from the shunt to I+ and I-. Wire I+ to the battery side of the current shunt and I- to the load side of the current shunt.

A single pole double throw (SPDT) auxiliary relay is available. Normally closed and normally open contacts are accessible from the terminal block and marked as NC and NO respectively. The common terminal is marked CM. When the charge controller is unpowered, the CM terminal will always be connected to the NC terminal. The B801 relay is rated for switching up to 0.5A at 60VDC. The auxiliary relay can be programmed to actuate at user-specified voltages. See B801 Operation Manual for further information on configuring the auxiliary relay.

6.7 REbus™ DC connection

WARNING: The wiring of the charge controller's REbus™ connections must only be done with the charge controller battery circuit breaker off **and** all REbus™ sources disabled or disconnected. Confirm with a meter that the REbus™ Microgrid is below 20VDC before performing any wiring operations.

WARNING: Hazardous voltage is still present on the REbus™ charge controller after disconnection of all inputs. Allow 3 minutes for the charge controller to discharge the DC voltage completely.

WARNING: Perform a high potential test on all existing wiring before any connections are made! N**ever trust existing wiring** until a high potential test has been performed. Pika recommends 1kV testing on all REbus™ wiring. Failure to high potential test existing wiring **before** installation will void warranty! For questions concerning high potential testing contact Pika Technical Support.

Two 500VDC 16A 3AB fuses are included in the B801 and are field replaceable. The fuses are located just above the wiring compartment on the REbus™ (left) side and can be removed from their holders with a flathead screwdriver.

A DC disconnect may be used on the REbus™ side between any REbus™ devices and the B801, however it is optional. If a disconnect is used it must be two pole and rated for at least 380VDC.

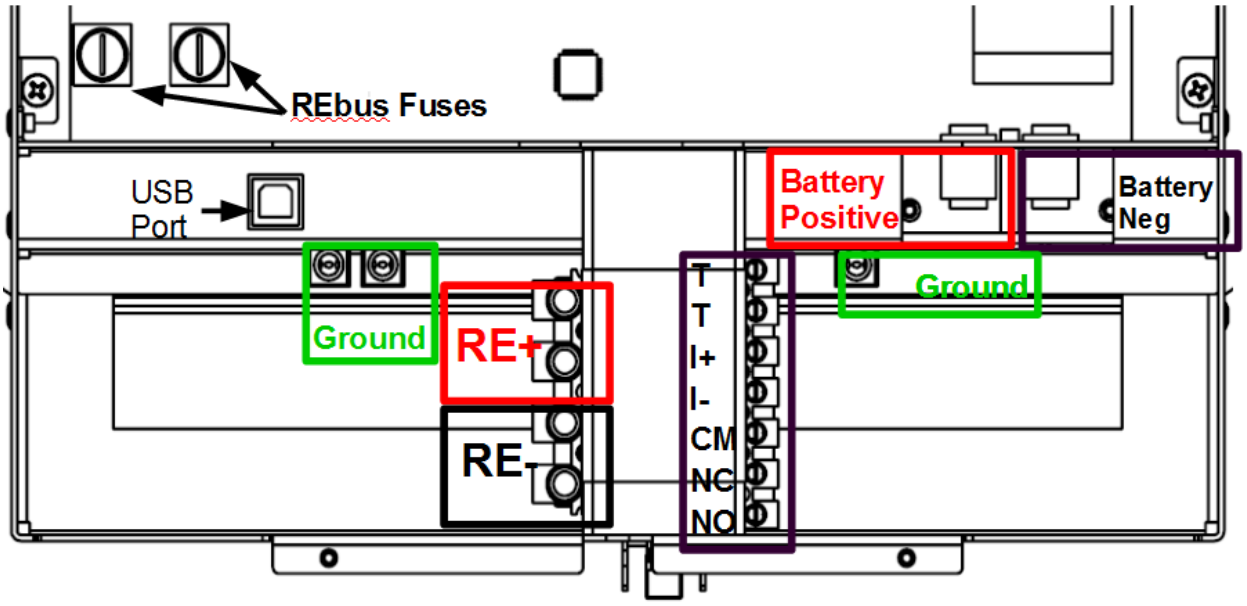


Figure 6.6 B801 Wiring Compartment

6.8 Wiring the charge controller

1. Open charge controller cover by hinging up and then position the kickstand on the right side to catch and support the lid.
2. Remove electrical conduit knockouts, either ½" or ¾", on the side or bottom surface of charge controller. Install electrical conduit.
3. The circuit breaker from the batteries to the B801 should be off and REbus™ sources (e.g. S2001 PV Link, T701 Wind Turbine) either disconnected or disabled. Confirm with a voltmeter that the REbus™ is below 20 VDC before performing any wiring operations.
4. (Optional) Complete wiring of other accessories to the accessory terminal block including battery temperature sensor, relay output, etc. Torque to 2.1 Nm (18.5 in-lb) using a flathead screwdriver.
5. Connect wires from battery bank to the DC circuit breaker and then to the charge controller. Use caution to not create a short between the battery terminals. Complete one connection at a time and use extreme caution. **DOUBLE CHECK THAT THE BATTERY WIRES ARE ATTACHED TO THE CORRECT TERMINALS!** Torque to 2.1 Nm (18.5 in-lb) using a size M4 hex wrench.

6. **WARNING: Before wiring the REbus™ side of the charge controller, carefully note the following wiring convention:**

   RE+ : Red wire (alternatively, white wire marked with at least three continuous wraps of red electrical tape at all terminations, as shown below)

   RE- : Blue wire (alternatively, black wire marked with at least three continuous wraps of blue electrical tape at all terminations, as shown below)

   Ground: Green wire (alternatively, bare wire)

7. Run wires from REbus™ DC sources to charge controller, connect to terminals (reference Figure for wiring locations), torque to 2.1 Nm (18.5 in-lb). See Figure 5.7 REbus™ Wiring Color Code for wiring reference.

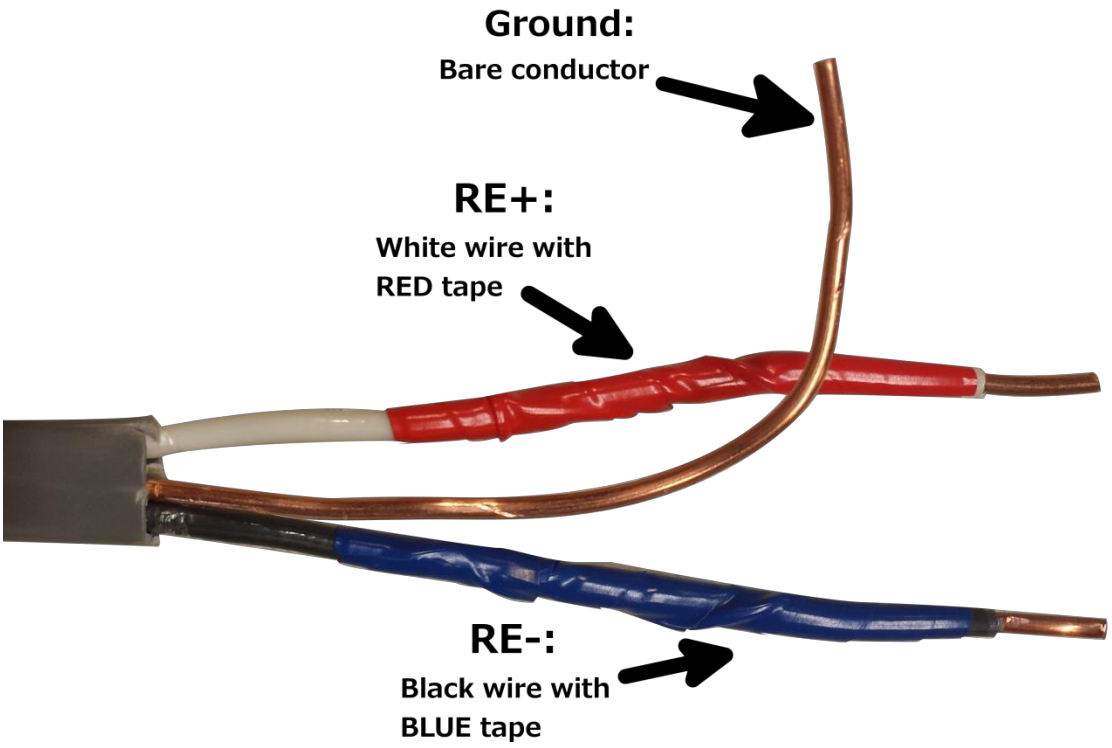


Figure 5.7 REbus™ Wiring Color Code

8. Connect earth ground wires, torque to as follows:

Wire Size	Screw Torque
8 AWG	4.5 Nm (40 in-lb)
10-14 AWG	4.0 Nm (35 in-lb)

WARNING: Make a final check for correctness of all AC and DC wiring to the charge controller and in the system. In particular, check that the polarity of the DC wiring is correct throughout the entire system. **Reverse polarity** will **DAMAGE** system components, may create a fire hazard and will void charge controller warranty!

9. Close charge controller cover and install two cover screws.

6.9 Commissioning the charge controller

Once the charge controller is mounted, and both battery and REbus™ microgrid connections have been made, ensure the charge controller enclosure lid is securely attached with its mounting screws. Ensure no wiring is accessible by personnel (install covers on junction boxes, attach shroud on turbine, etc). The charge controller is now ready to power ON in accordance with the following steps:

1. Turn on the REbus DC disconnect (if the system is equipped with optional DC disconnect)
2. Turn on the battery bank circuit breaker.
3. Turn on the power switch on the bottom surface of the charge controller.
4. Watch the LCD for initialization sequence.
5. Use the arrow keys to scroll to the charge controller page. Enable the charge controller by pressing the center button, selecting “Enable” and press “Confirm”. If this is the first time powering up the charge controller, devices connected on REbus™ will be automatically discovered.
6. See the B801 Operation Manual for enabling REbus™ devices, connecting the Wi-Fi and other system configuration.

6.10 Operation

Please consult the Pika B801 User Manual for instruction and important safety precautions related to the operation of your new charge controller. Charge controller operation is best performed by persons who have read and understand the user manual.

7 Troubleshooting

The following table offers a few initial actions to try in the event that the charge controller is not behaving as expected. Contact technical service if the symptoms persist.

WARNING: Disconnect all power to the B801, including sources of DC power before troubleshooting any wiring. Always check wiring with a voltmeter to ensure safe working conditions! Do not open the lid of the charge controller without turning off all sources of power connected to it.

Symptom	**Action**
Unit does not power up	1) Check that DC power from the battery bank is present between 20V-60V at the terminals of the B801. 2) Toggle the power switch on the bottom side of the charge controller
Ground Fault	1) Turn off the optional REbus™ breaker that feeds the charge controller. Disconnect battery bank wiring and the REbus™ side wiring. Ensure REbus™ is electrically insulated using wire nuts or electrical tape. Reconnect battery power to the B801 and turn ON the charge controller. Enable REbus and verify the ground fault message is no longer displayed. If the ground fault is no longer present, check REbus wiring for ground fault. (see step 2). 2) Check the wiring on the REbus™ (DC) side. Ensure that none of the DC wires are touching the enclosure or earth ground wires. RE+ and RE- should measure >1MΩ to ground with a multimeter. Some possible scenarios: incorrect REbus™ wiring, lightning arrestor failed, chaffed wire insulation, or broken wire.
Unit displays waiting state	1) Some fault conditions warrant a 5 minute timeout, if the unit does not return to normal operation after 5 minutes, turn the power switch off, wait 30 seconds and turn it back on again. 2) If unit does not return to normal operation and battery voltage is within correct range, contact Pika technical service.
LCD Screen displays solid black or solid white	1) Turn the unit off using the power switch on the bottom, wait 1 minute and turn it back on again.
Charge controller display does not show connected REbus™ devices OR connected devices show status “offline” although the charge controller is enabled.	1) Check that ground wire on REbus™ side is connected to the lug in the wiring compartment. There must be a continuous ground wire from the B801 to the other REbus™ devices for communications to work properly. 2) Reseat the cable that attaches the LCD screen to the main board within the B801. Note this is a polarized connector. It may be dislodged during

	shipping or installation. 3) Call technical support for further troubleshooting.
Charge controller displays devices which are no longer connected to REbus™	1) Delete unwanted devices by selecting “Remove” under the device page. Reference B801 Operations Manual for further detail.

35 Bradley Drive, #1
Westbrook ME 04092
info@pika-energy.com

pika-energy.com